Aalto University
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THE INFLUENCE OF NATIONAL CULTURE ON VENTURE CAPITAL ACTIVITY

A comparative analysis of 67 countries and six cultural dimensions

Bachelor's Thesis
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Finance

Fall 2018

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Title of thesis The influence of national culture on venture capital activity

Degree Bachelor

Degree programme Finance

Thesis advisor Theresa Spickers

Year of approval 2018 **Number of pages** 27 **Language** English

Abstract

This study provides new evidence on the impact of national culture on venture capital activity. The previous literature examining the relationship between national culture and domestic VC activity is very limited. However, national culture has been found to influence economic and management behaviors (Hofstede, 1980, 2001). Therefore, it is presumable, that culture influences the two major determinants of venture capital activity; entrepreneurial activity and access to venture capital financing.

I examine the effect of Hofstede's six cultural dimensions, power distance, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence. I find that feminine culture is associated with higher level of VC activity. Consistent with Li and Zahra (2012) I also find, that uncertainty avoidance and collectivism are negatively associated with VC activity. Furthermore, I build a framework (Figure 9) through which further research could be executed by exploiting the framework and path analysis technique.

Keywords culture, venture capital, cultural dimensions

Contents

1. Introduction

The notion of creative destruction of economy was introduced already in the 1930s by Joseph Schumpeter (McCraw, 2009). His notion strongly focuses on new innovative enterprises and the renewal of the whole economy, which further pinpoints the financing bottle neck of this renewal process. Previous literature indicates that access to finance is a major determinant of economic growth (Rajan and Zingales, 1998; Beck et al., 2000; Claessens and Tzimouis, 2006). Here the venture capital (VC) market plays a key role.

Venture capitalists (VC) are specialized financial intermediaries who combine their unique mix of experience in business and technology and financial resources, to provide both financial and managerial support for innovative entrepreneurs (Hain et al., 2016). It has been established by extensive research that venture capital not only promotes innovative activities (Kortum and Lerner 2000; Samila and Sorenson 2010, 2011) but it also contributes to enabling innovative products and services to be rapidly brought to the market (Black and Gilson 1998; Bygrave and Timmons 1992). It is therefore, not surprising, that the creation of thriving venture capital markets has become an essential goal of several emerging and developed economies.

However, the level of VC activity varies substantially across countries (e.g. Wright et al., 2005). Countries such as the United States, China, Canada, Sweden and the United Kingdom have been able to develop extremely large and flourishing venture capital markets, as opposed to other countries having only very little venture capital activity compared to their economy-size. Could the differences between national cultures explain a part of this phenomenon? Several research papers have found that Geert Hofstede's cultural dimensions influence economic behavior and entrepreneurial and innovative activity (e.g. Hofstede, 1980, 2001 and McGrath, MacMillan & Scheinberg, 1992 and Shane 1992, 1993). It is therefore possible and interesting to examine, whether national culture supports and hinders the development of venture capital markets in different countries.

Previous research has examined the effect of Hofstede's two cultural dimensions: Individualism versus collectivism (IDV) and Uncertainty avoidance (UAI) on venture capital activity within a country. This literature shows that uncertainty avoidance and collectivism influence venture capital activity negatively. (Li and Zahra, 2012)

Additionally, Aggarwal and Goodell (2014) have found a significant effect of femininity and uncertainty avoidance on the access of venture capital financing relying on executive opinion surveys.

However, the amount of research exploring the effect of national culture on domestic VC activity is still limited. Furthermore, the effects of the Hofstede's remaining four cultural dimensions, Masculinity, (MAS) Power distance, (PDI) Long-term orientation (LTOWVS) and Indulgence versus restraint (IVR) on the domestic VC activity have not yet been researched.

The aim of this paper is to analyze how these six cultural dimensions contribute to domestic VC activity. The applied empirical evidence covers 67 countries and six cultural dimensions. Throughout the thesis, I test 5 different hypotheses. These hypotheses seek to examine the influence of Hofstede's cultural dimensions on domestic VC activity.

The results of this paper indicate, that femininity is associated with a higher level of VC activity. Additionally, the results are somewhat consistent with Li and Zahra (2012), adducing the negative relationship between uncertainty avoidance and collectivism and VC activity.

The paper is organized as follows: after the introduction in section 2 I go through the prior research on this topic. In section 3 I present the theory related to the research topic and build my hypotheses. In section 4 I present the data and its descriptive statistics and the methodologies that I use in the research. In section 5 I

present the results and address robustness. Section 6 concludes the paper, and section 7 suggests directions for further research. Section 8 provides the references. Section 9 shows the appendices.

2. Literature review

The previous research examining the relationship between national culture and VC activity focuses mainly on cross-national venture capital deals. This growing body of research focuses on the cultural disparity between the company receiving finance and the VC. Dai and Nahata (2016) study VC syndication and find that when the foreign lead VC syndicates with VCs from culturally similar countries, the local VC involvement increases. Furthermore, Hain et al. (2016) find trust to mitigate the negative effects of geographical and cultural distance in cross-border VC deals.

However, this paper seeks to examine the influence of national culture on the country's VC activity, not the influence of cultural disparity on cross-border VC deals. The research that examines the impact of national culture on VC activity within a country, generally focuses on only a few cultural dimensions. It has been established through earlier research, that some of Hofstede's cultural dimensions do influence VC activity within a country. It has been found that uncertainty avoidance is negatively related to VC activity (Li and Zahra, 2012) and access to VC finance (Aggarwal, and Goodell, 2014). Both these research papers show a statistical significance at 1% level for uncertainty avoidance. Furthermore, the level of VC activity for individualist countries is higher than those of more collectivist countries at 1% level of statistical significance (Li and Zahra, 2012). High power distance has additionally been negatively associated with national innovation rates (Hayton et al, Shane 1992).

Nevertheless, Aggarwal and Goodell do not find a statistically significant effect of power distance or individualism on access to finance. However, they find that femininity is associated with a better access to overall financing and VC financing with a 10% significance level. (Aggarwal and Goodell, 2014)

Unfortunately, there are no research papers that would focus on domestic, "unicultural"[1] deals and take into account all six of the cultural dimensions. Also, there are no research papers on even all the four major cultural dimensions (pdi, idv, mas, uai) and their relation to VC activity.

What is more, the amount of research exploring the effect of national culture on domestic VC activity is still very limited. Additionally, the effects of the Hofstede's remaining four cultural dimensions, Masculinity, (MAS) Power distance, (PDI) Long-term orientation (LTOWVS) and Indulgence versus restraint (IVR) on the domestic VC activity have not yet been researched. From a broader perspective, researchers have found relations between Hofstede's cultural dimensions and entrepreneurial activity. (Hayton et al., 2002)

[1] I define unicultural VC deal by having at least one domestic VC involved in the VC investment. Thus, the national culture of the startup receiving financing can be expected to be represented in the deal making process.

3. Theory and hypotheses

3.1. Background of VC activity

The framework illustrated in Figure 1 demonstrates the determinants influencing venture capital activity within a country.

The level of venture capital activity has two major determinants which influence it. Firstly, entrepreneurial activity and innovative ventures affect the size of a VC market. Secondly, access to venture capital financi influence the size of a VC market. This dependency is demonstrated in F In the following I am going to examine these two determinants and their relation to national culture in depth.

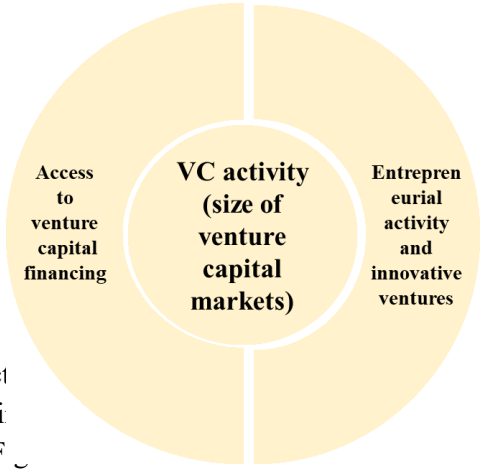


Figure 1. The major determinants of venture capital

3.2. Entrepreneurial activity and innovative ventures in relation to culture

There are several variables that influence entrepreneurial activity. Some of these variables are related to the economy, regulation, personality or cultural and societal differences.

Culture is the foundation of ideology - the subjective model that people use to explain the world around them (North, 1990). According to Huntington (2000), it includes the set of shared values, attitudes, beliefs, and underlying assumptions prevalent in a society.

Culture acts as a moderator in the relationship between contextual factors e.g. business regulations (Urban, 2007) and formal institutions (Li and Zahra, 2012) and entrepreneurial outcomes. According to Urban (2007), "Culture acts as a catalyst, rather than a causal agent of entrepreneurial outcomes."

A multitude of studies support the argument that cultural values impact on entrepreneurial activity. According to Hofstede (1980, 2001) national culture influences a variety of economic and management behavior. Furthermore, according to McGrath et al. (1992) national culture influences entrepreneurship. Investigating entrepreneurship in the USA over time, Boyd (1990) finds, that some individuals with different cultural roots tend to be more prolific in initiating ventures.

Furthermore, culture influences the status attached to entrepreneurs. (Bruton et al., 2005) For example, in the USA entrepreneurs are held in high status, but they are valued a lot less in some European countries. (Reynolds et al., 2000) In fact, in some European countries, the entrepreneur is generally perceived as an opportunist. The effect of this cognitive institution on the supply of entrepreneurs has already been discovered (Kuemmerle, 2001).

Cultural values indicate the degree to which a society considers entrepreneurial behaviors, such as risk taking, independent thinking and innovation, to be desirable. Cultures that value and reward such behavior support a tendency to introduce and develop radical innovation, whereas cultures that reinforce conformity, group interest and control over the future are not likely to show risk taking and entrepreneurial behavior. (Hayton et al., 2002) Previous literature has found evidence on the relationship of national culture and innovation. Individualism has been found to be positively associated, and power distance negatively associated with national innovation rates (Shane 1992).

Based on extensive previous research on culture, the role of cultural values in the equation of increased entrepreneurship is founded on Hofstede's (1980) dimensions of national culture. Although Hofstede (2001) did not fully unveil the linkage between culture and entrepreneurship, his dimensions are, however useful in identifying criteria of culture related to entrepreneurship.

3.3. Access to VC financing and culture

The second determinant, access to VC financing is also influenced by several factors. As presented by Raja and Zingales (2003), access to finance is essential for the economic renewal and the creative disruption related to it. Easy access to finance allows new firms to emerge which can compete with prevalent companies. This competition makes the economic system more vital and the markets more efficient. As discussed in section 2, Aggarwal and Goodell find relationships between Hofstede's dimensions and access to VC finance. (Aggarwal & Goodell, 2014)

3.4. Problems related to VC: asymmetric information, principal-agent problem and adverse selection

The channeling of funds from savers to borrowers or entrepreneurs is a crucial function in all countries. It is primarily undertaken through financial institutions and/or financial markets. Each financing channel must resolve the issues of asymmetric information, adverse selection and agency costs involved in financing contracts that cover the monitoring and collection of funds provided by savers to investors. (Aggarwal and Goodell, 2014)

For venture capitalists these problems are pronounced. This is due because the new startup companies seeking VC financing tend to have little or no track record, they tend to be highly risky and have little historical data. (Aggarwal and Goodell, 2014) Additionally, the innovation or business idea for which the startup is seeking financing is often new and there is little or no track record of its feasibility and attractiveness for its end-users or its marketability in the markets.

Due to these reasons, the information asymmetry between the VC and the startup is larger than e.g. in traditional bank loans issued for older companies. The representatives of the startup are, however most likely receiving some sort of information, positive and/ or negative feedback, through the responses they receive for their product or service offering, once they contact different agents in the markets, while trying to enlarge and spread out/ distribute their offering to the larger market. This information, especially and mostly when negative, however, usually remains inside the startup, and it will rarely be shared with the VC's representatives. This enhances the adverse selection and high risk that comes with VC investing. For the VC and the startup to reach a deal, it is for the above-mentioned reasons important, that the communication between them is based on trust and is as open as possible.

Open communication and active cooperation are important in financial contracting. According to Aggarwal and Goodell (2014): "Given that all optimal contracts are incomplete, the efficacy and efficiency of overcoming contracting costs depends on the ability and willingness of the contracting parties to try and take advantage of each other. Such ability and willingness depend not only on industrial structure and the legal environment, but also on ethical and other informal conventions reflected in social and cultural values that differ from country to country." Conclusively, these cultural and social values and dimensions are reflected in the nature of financial intermediation in different countries.

All in all, it is clear from this discussion that the emergence of venture capital activity requires trust, open communication and is affected by cultural dimensions. Indeed, the nature of financial intermediation in various countries reflects its cultural and social values. Thus, it is reasonable to believe that the emergence of risky VC deals is likely to vary internationally based on similar factors.

3.5. Building hypotheses: Hofstede's cultural dimensions' relation with VC activity

In order for us to understand the starting point of this research, we need to establish what the six cultural dimensions discovered by Geert Hofstede in fact represent. Below, I discuss all the six cultural dimensions and conduct five hypotheses.

PDI – Power distance

"Power distance has been defined as the extent to which the less powerful members of the society; of organizations and institutions accept and expect that power is distributed unequally. This represents inequality, but it is defined from below, not from above." (Hofstede, 2011). "People in societies exhibiting a large degree of power distance accept a hierarchical order in which everybody has a place and which needs no further justification." (Hofstede Insights, 2018) Consequently, it can be expected that in high PDI countries, it is less common, that people with less power will aspire to initiate innovative ventures and approach people with power and financial resources. Presumably in countries with high PDI the societal structures hinder the possible encounters between possible young and less wealthy entrepreneurs and more wealthy and powerful venture capitalists.

In societies with high power distance, corruption is frequent and autocratic governments based on co-optation are common, and they are often changed by revolution. This could indicate a lower rank on political stability too and affect the level of VC activity adversely. (Hofstede, 2011)

According to Hofstede's extensive research, power distance is higher for East European, Latin, Asian and African countries and lower for Germanic and English-speaking Western countries and Nordic countries. (Hofstede, 2011)

In societies that score high in power distance, older people are both respected and feared. (Hofstede, 2011) Since most of the VC investors and business angels are older members of the society and the startup entrepreneurs often younger people, high power distance could hinder the growth of VC investments.

Based on the above explained argumentation, I conduct a hypothesis:

H1: Hypothesis 1. The higher the level of power distance, the less VC activity there is within the country.

IDV - Individualism vs collectivism

Individualism – collectivism dimension is the degree to which people in a society are integrated into groups. A high score in this dimension reflects individualism, and low score collectivism. In collectivist societies relationship prevail over task. (Hofstede, 2011) Previous research has established that collectivism indicates a tendency to depend on in-group informal relationships (rather than formal institutions) in mitigating transaction problems. Consequently, collectivist orientation can restrict the development of formal institutions, limit venture capitalists' deal flow to those connected to their existing network and exclude potential venture capitalists from joining the network and investing. (Li and Zahra, 2012)

Individualism tends to prevail in developed and Western countries, while collectivism prevails in less developed and Eastern countries; Japan takes a middle position on this dimension. (Hofstede, 2011) Asian countries such as South Korea and China have highly collectivist national cultures and are known for their institutional logics; connectedness and relationships, different from Western economies. (Biggart and Hamilton, 1992) *Gaunxi* is an example of this visible idiosyncrasy in China. Additionally, it has been found that social networks initially rose in response to the absence of strong legal traditions. The relationships and connections provided by the network are an alternative means to enforce contracts or sanction violators. (Perkins, 2000)

Bruton et al. (2005) conclude, that a moderate level of social networks is likely to support a country's economy. Nevertheless, they highlight, that a high level of social networks, especially if these networks are difficult to join, is a major barrier to VC.

Based on previous literature, I conduct a hypothesis:

H2: Hypothesis 2. The higher the level of individualism, the more VC activity there is within the country.

MAS - Masculinity vs femininity

Masculinity – femininity dimension refers to the distribution of values between genders. In masculine societies emotional gender roles are distinct. The women in feminine countries have the same modest, caring values as the men. In masculine countries women are somewhat assertive and competitive, but not as much as men, so that these countries show a gap between men's and women's values. In masculine societies people admire the strong and work prevails family, as opposed to feminine societies in which people have sympathy for the weak and there is a balance between family and work. In masculine countries men are expected to be assertive and ambitious and boys are not allowed to cry and express their feelings although girls are, and boys are expected to fight back. In masculine countries there are only few women in elected political positions as opposed to feminine countries. (Hofstede, 2011) In masculine countries there are also relatively more people living below the poverty line and relatively a larger percentage of people that cannot read and write than in feminine countries. (Youtube, 10 minutes with Geert Hofstede on Masculinity versus Femininity, 2014)

Masculinity is high in Japan, in German speaking countries and in some Latin countries such as Italy and Mexico. It is moderately high in English speaking Western countries and it is low in Nordic countries and in the Netherlands. It is moderately low in some culturally Latin and Asian countries such as France, Spain, Portugal, Chile, Korea and Thailand. (Hofstede, 2011)

I conclude that due to distinct and restrictive gender roles and the strict expectations and pressure in masculine countries there are fewer possibilities for both women and men to perform well in the society. This leads to less entrepreneurial activity and VC activity. Supposing that, since people and the labor markets do not work as efficiently as they could, the economy and the financial markets also suffer from more inefficiency.

Based on previous literature and the above explained argumentation, I conduct a hypothesis:

H3: Hypothesis 3. The higher the level of masculinity, the less VC activity there is within the country.

UAI – Uncertainty avoidance index

Uncertainty avoidance index is defined as the extent to which the members of a culture feel uncomfortable and threatened by uncertainty and ambiguity. Societies with high uncertainty avoidance see uncertainty in life as a continuous threat that must be fought. Due to this these societies have created beliefs and institutions that try to avoid uncertainty and ambiguity. Intolerance towards deviant persons and ideas, the view that "what is different is dangerous" is a characteristic trait of an uncertainty avoiding culture. (Hofstede, 2011) "Uncertainty avoidance indicates low tolerance for risk-taking activities such as VC investment and raises the opportunity costs of risk-taking." (Li and Zahra, 2012)

Uncertainty avoidance indices tend to be higher in East and Central European countries, in Latin countries, in Japan and German speaking countries. Uncertainty avoidance tends to be lower in English speaking, Nordic and culturally Chinese countries. (Hofstede, 2011)

Based on previous literature, I conduct a hypothesis:

H4: Hypothesis 4. The higher the level of uncertainty avoidance, the less VC activity there is within the country.

LTOWVS – Long term orientation versus short term normative orientation

The long-term – short-term dimension reflects the connection of the past and the current and future actions and challenges within a society. (Hofstede Insights, 2018) Normative, short-term oriented societies that score low on this dimension prefer to maintain time-honored traditions and norms while viewing societal change with suspicion. (Hofstede Insights, 2018) According to Hofstede's research (Hofstede 2011) long-term oriented societies want to learn from other countries. They are also ready to adapt traditions and tolerate opposing truths. They see good and evil as relative and there are no fixed norms, but norms depend on the situation. In long-term oriented societies common sense and choosing the middle way is encouraged. (Hofstede, 2011)

Long-term oriented are East Asian countries, followed by Eastern and Central Europe. A medium-term orientation is found in South- and North-European and South Asian countries. Short-term oriented are U.S.A. and Australia, Latin American, African and Muslim countries.

In long-term oriented countries thrift and perseverance are important goals. There is also a large savings quote and funds available for investment as opposed to short-term oriented countries in which social spending and consumption are relatively more pronounced than saving and investing. (Hofstede, 2011)

Since long-term oriented societies seem to encourage learning and forward-looking mentality, acceptance of the new and change of traditions, I therefore conclude that long-term oriented countries are more capable of producing innovations and startups. Countries that score high in long-term orientation are more ready and accepting towards societal and technological change and therefore are able to create larger venture capital markets.

Based on the argumentation above, I conduct I hypothesis:

H5: Hypothesis 5. The higher the level of long-term orientation, the more VC activity there is within the country.

IVR – Indulgence versus restraint

The indulgence versus restraint dimension reflects the "extent to which people try to control their desires and impulses, based on the way they were raised". (Hofstede Insights, 2018) A society with high indulgence "allows relatively free gratification of basic and natural human drives related to enjoying life and having fun". A society on the restraint side of the dimension "suppresses gratification of needs and regulates it by means of strict social norms." (Hofstede, 2011)

In indulgence-oriented societies higher percentage of people declare themselves very happy, as opposed to restrained societies in which there are fewer very happy people. Leisure has a higher importance in indulgence-oriented countries. In restrained countries there is a perception of helplessness within the society: "what happens to me is not my own doing". In indulgence-oriented societies leisure is valued more than in restrained societies. (Hofstede, 2011)

According to Hofstede's extensive research, indulgence tends to prevail in South and North America, in Western Europe and in parts of Sub-Sahara Africa. Restraint prevails in Eastern Europe, in Asia and in the Muslim world. Mediterranean Europe takes a middle position on this dimension. (Hofstede, 2011)

Based on previous literature, I cannot make solid argumentation to form a hypothesis about the effect of indulgence on VC activity. Since IVR is still part of the cultural framework of Hofstede, I still include it as an explanative variable in my regressions and analyze its influence on VC activity.

All in all, according to Holden (2002), Hofstede's cultural dimensions "give a powerful, empirically developed framework for explaining cross-cultural differences. The multidimensional model maps and cross-references cultural traits across several countries."

4. Data and methodology

4.1. Data, variables and methodology

I test my hypotheses using data collected from the SDC Platinum VentureXpert database provided by Thomson Reuters Financial. This dataset provides the most comprehensive coverage of VC activity in the world.[2] I focus my analysis on a solid 10-year period between years 2007 and 2016. This is because, in most emerging economies VC activity has only gained significance starting from after the millennium.

I use two measures to capture the level of VC activity in a country. The first is the total number of VC deals executed during the time period 2007-2016 in that country. The second measure is the total amount in dollars of the VC deals in a country. I use the second measure for VC activity for robustness checks. In all of the regressions, I focus on deals in which there are either one or several venture capitalists (either VC firms or funds) that represent the same national culture as the startup company receiving finance. I include solely these domestic, "unicultural" deals, so that the national culture with its dimensions is expected to be represented in the deal. Therefore, I leave out the fully cross-border deals, in which all the VCs in the deal represent different national cultures than the portfolio company.

My sample consists of approximately 41 920 venture capital deals inside up to 67 countries. (See appendix 1 for the individual values of the countries.) Table 1 presents all the variables I use in the regression models and their sources.

I perform a regression analysis using the number of VC deals as the explicable variable and the cultural dimensions as explanative variables and use several control variables to ensure the robustness of the results. I perform 8 different models and 4 robustness check models.

[2] Since the definition of VC varies across countries and databases (Baygan and Freudenberg, 2000) I decide to use data solely from VentureXpert to ensure data consistency over time and across countries. Nonetheless, the data of VentureXpert has been compared with data from European Venture Capital Association (EVCA) and it has been found that the number and amount of investments are highly correlated across these databases (Li and Zahra, 2012).

Table 1. List of country-based variables

Variable	Definition	Source
Number of VC deals	Dependent variable; sum of number of unicultural deals executed during years 2007-2016	VentureXpert database in Thomson Reuters SDC
Sum amount of VC deals	Dependent variable; sum of the dollar amount of unicultural deals executed during years 2007-2016	VentureXpert database in Thomson Reuters SDC
Six cultural dimensions (pdi, idv, mas, uai, ltowvs, ivr)	Explanatory variables; cultural dimensions produced by a global survey to IBM employees around the world	Hofstede, 2001; www.geerthofstede.com
GDP	Average gross domestic product during years 2007-2016	World Bank
Population	Average population during years 2007-2016	World Bank
Legal origin	The legal origin of the country. British law, French law, Soviet law, Scandinacian law, German law being the omitted variable	La Porta et al, 1999
Equity market capitalization	The equity market capiltalization; end of year values converted to U.S. dollars	World Bank
Political stability and absence of vioelence and terrorism	Rank according to the estimate of governance. Percentile rank ranges from 0 lowest to 100 highest rank. Average rank during the time period 2007-2016	WGI (World Governance Indicators) World Bank

4.2. Descriptive statistics

I assess the data that is used in the regression and their descriptive statistics so that we can assess whether the prerequisites of regression analysis are met.

The descriptive statistics for the countries and all the variables used in the regressions are presented in Table 2. The table presents the descriptive statistics of the explanative variables (the six cultural dimensions), the dependent variables (number and sum amount of VC deals) and the control variables. The indicator variables, (Legal origin and Western world, which is used in the robustness checks) are not included in the table, since they are binary indicator variables with no means etc. Table 2 shows that the means of the cultural dimensions in this sample range between 46 to 66 depending on the cultural dimension. We see that the standard deviation is typically ca. 22.

The mean of the number of unicultural VC deals per country during the 10-year time period is 613. The median is, however, only 33, meaning that there are several countries with only a couple of VC deals per year in the dataset. The minimum is 1 and the maximum is an outstanding 19 666, which represents the United States. The standard deviation is 2464, which is relatively high, mainly caused by the exceptionally high amount of VC deals executed in the outlier country United States. (The outlier position of United States can be best seen in Appendices 2 and 3).

Table 2. Descriptive statistics of all variables

Variable	Mean	Std	Min	Median	Max
PDI	57.4	21.3	11	60.5	104
IDV	48.7	23.3	13	47	91
MAS	48.9	21.4	5	50	110
UAI	65.7	23.8	8	69	112
LTOWVS	51.5	21.8	13.1	51	100
IVR	45.8	21.0	0	45.9	97
Number of VC deals	613	2464	1	33	19666
Sum of VC deals (thousands USD)	24941972	110496678	263	1483454	727748575
GDP	1.17E+12	2.49E+12	2.29E+10	3.15E+11	1.61E+13
Population	94408682	247661894	527397	21362282	1347786500
Equity market capitalization	6.75E+11	2.16E+12	1.29E+09	1.22E+11	1.43E+13
Political stability and absence of violence and terrorism	60.2	27.6	1.2	65.3	97.8

To assess, whether the cultural dimensions are normally distributed or not, I present their histograms. The histograms for all the cultural dimensions are represented in Figures 2-7.

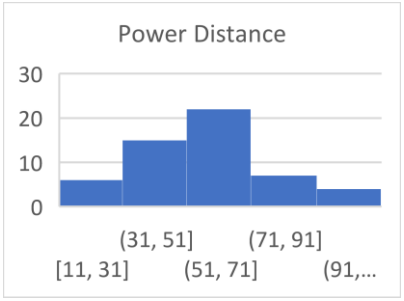


Figure 2. The distribution of Power Distance across the sample countries.

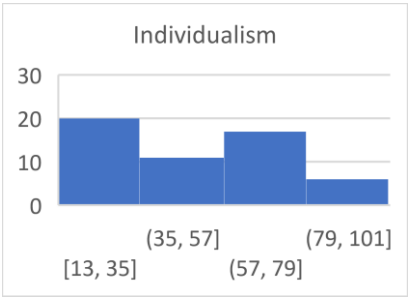


Figure 3. The distribution of Individualism across the sample countries.

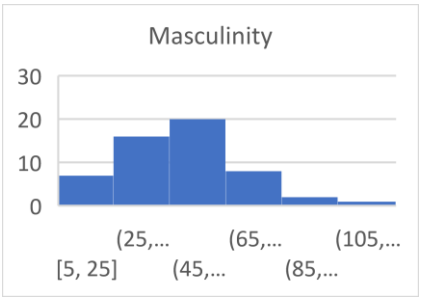


Figure 4. The distribution of Masculinity across the sample.

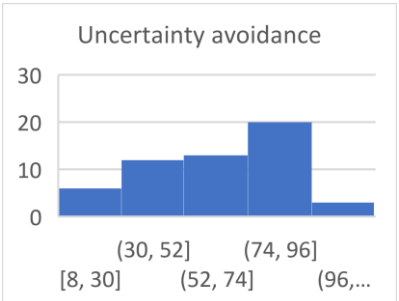


Figure 5. The distribution of Uncertainty avoidance across the sample.

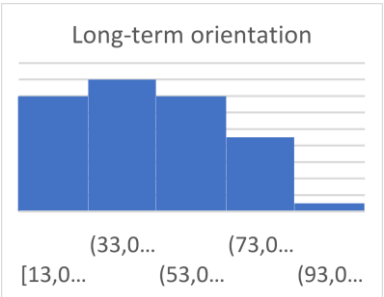


Figure 6. The distribution of Long-term orientation across the sample.

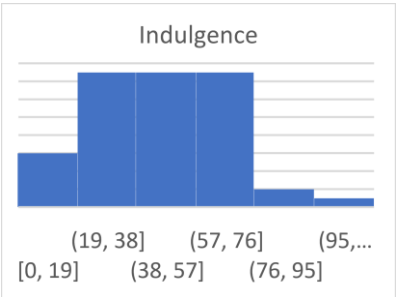


Figure 7. The distribution of Indulgence across the sample.

From the histogram figures it can be seen that most of the cultural dimensions seem to be distributed rather evenly, resembling a somewhat normal distribution. Mostly just individualism and uncertainty avoidance strike off as not being so evenly or normally distributed.

Table 3 presents the correlation coefficients between all the explanative variables, cultural dimensions. Multicollinearity would exist, if the independent variables would be highly correlated ($r > 0.9$ (Pallant, 2007)). It is shown in the table 3 that there is no high correlation between the variables. The highest correlation exists between power distance and individualism (-0.65). It is a relatively high correlation, but not too high to be used in research. The other correlation coefficients are relatively low.

Table 3. Correlation coefficients between the six different cultural dimensions

	pdi	*idv*	*mas*	*uai*	*ltowvs*	*ivr*
pdi	1					
idv	-0.65	1				
mas	0.18	0.05	1			
uai	0.20	-0.24	0.02	1		
ltowvs	0.06	0.03	0.07	-0.01	1	
ivr	-0.36	0.30	0.03	-0.16	-0.49	1

(Appendix 4 shows the correlation coefficients between all the variables in this regression analysis.)

Figure 8 presents the histograms of the Number of VC deals per country. From the figure, it can be seen that VC activity varies substantially across the countries in the sample. Furthermore, there are a few countries with a notably high VC activity, such as Canada, China, France, Germany, India, United Kingdom and United States. Assessing the scatter plot charts presenting correlation between each cultural dimension and the Number of VC deals (dependent variable) I find that the United States and China represent outliers in the dataset. (The scatter plot charts of correlation can be seen in Appendices 5-10.)

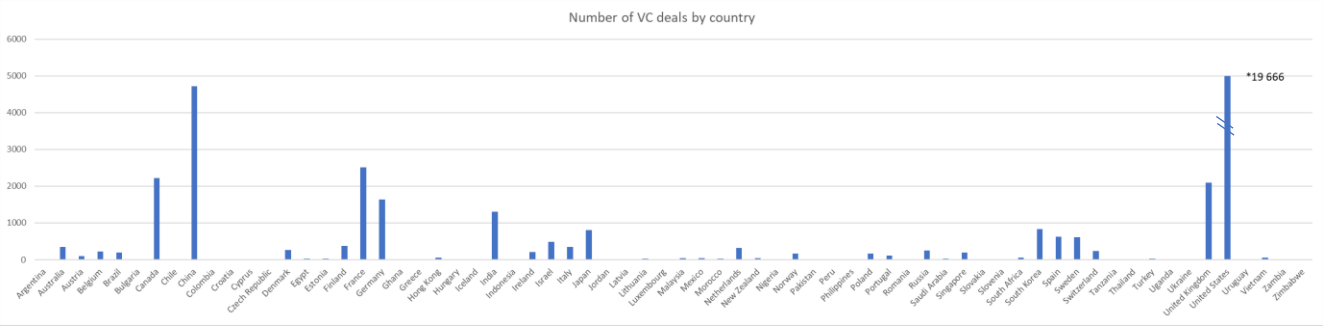


Figure 8. The Number of VC deals per country in histograms. *Note that United States in fact should have a taller histogram, but the graph was modified so that the differences between rest of the countries could be seen better. There were 19 666 VC deals executed in the USA during the time period.

As the previous analysis of variables shows, narrowly interpreted the prerequisites to perform a regression analysis do not strictly speaking hold. This is because, not all of the cultural dimensions are normally or even evenly distributed and the correlation coefficients between the cultural dimensions and the dependent variable (Number of VC deals) are relatively small (See Appendix 4). In addition, as we see from Figure 8, the number of VC deals varies significantly across countries, and this measure is also not normally distributed. However, the results of the analyses are very convincing in the sense of data analysis in terms of statistics.

5. Results

In this section I examine the influence of six cultural dimensions on VC activity. Subsequently I examine how significant the control variables are in explaining the varying VC activity across countries.

In Section 5.1. I present the formula for the basic regression model. In section 5.2 I present the results of 8 different regression model. In section 5.3. I assess the robustness of the results in three different ways and four regression models.

5.1. Regression models

The regression model 8 (See Table 4) is built as below:

$$Y(Number\ of\ VC\ deals) = \beta_0 + \beta_1\, GDP + \beta_2\, Population + \beta_3\, British\ Law + \beta_4\, French\ Law + \beta_5\, Soviet\ Law + \beta_6\, Scandinavian\ Law + \beta_7\, Equity\ Market\ Cap + \beta_8\, Political\ stability + \beta_9\, \boldsymbol{Power\ distance} + \beta_{10}\, \boldsymbol{Individualism} + \beta_{11}\, \boldsymbol{Masculinity} + \beta_{12}\, \boldsymbol{Uncertainty\ Avoidance} + \beta_{13}\, \boldsymbol{Long\text{-}term\ orientation} + \beta_{14}\, \boldsymbol{Indulgence}$$

In the model, β stands for the coefficient of each variable.

5.2. Regression results

In this section, I present the results of 8 different regression models. All the models have Number of VC deals as the dependent variable, and GDP, Population, Legal origin and Political stability as controls. In models 1-6, every regression has only one cultural dimension as an explanative variable. Model 1 has Power Distance Index (PDI) as the explanative variable, model 2 has Individualism (IDV) and so on.

In models 7 and 8, I include all six cultural dimensions included as explanative variables. I must use two different subsamples for models 7 and 8. This is due to the incomplete data on equity market capitalization in World Bank database. In model 7, I use a larger sample of 54 countries without equity market capitalization as a control variable. In model 8, I use a slightly smaller sample of 45 countries and include equity market capitalization as a control variable. Table 4 presents the regression results for models 1-8. The first estimate shown in a cell represents the coefficient of the variable in the model. The estimate above it in brackets represents the p-value for the coefficient in the model. Significance levels of 10%, 5% and 1% are denoted by *, ** and ***, respectively. Additionally, a notation for "nearly statistically significant", meaning a significance level of 15% is added and noted by +.

Table 4. Regression results for models 1-8.

Models	1	2	3	4	5	6	7	8
PDI	-5.092						0.557	-3.509
	(0.459)						(0.955)	(0.702)
IDV		-0.685					2.588	0.063
		(0.917)					(0.762)	(0.994)
MAS			-10.192+				-13.168*	-11.752+
			(0.128)				(0.088)	(0.106)
UAI				-0.120			-5.859	-8.134
				(0.987)			(0.426)	(0.258)
LTOWVS					-9.523+		-17.552*	-6.305
					(0.109)		(0.056)	(0.479)
IVR						-1.579	-5.338	1.550
						(0.783)	(0.531)	(0.855)
GDP	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.063)
Population	− 0.000***	−0.000***	– 0.000***	−0.000***	−0.000***	− 0.000***	− 0.000**	0.000+
	(0.007)	(0.005)	(0.006)	(0.009)	(0.006)	(0.002)	(0.033)	(0.131)
British Law	1839***	1822***	1665***	1811***	1337***	1739***	750	123
	(0.000)	(0.000)	(0.001)	(0.001)	(0.005)	(0.000)	(0.306)	(0.856)
French Law	1268**	1191**	998**	1189**	895*	1253***	388	411
	(0.010)	(0.014)	(0.038)	(0.014)	(0.052)	(0.004)	(0.557)	(0.452)
Soviet Law	1502***	1389***	1173**	1360***	1301***	1378***	730.6	963.1+
	(0.003)	(0.004)	(0.016)	(0.006)	(0.002)	(0.002)	(0.265)	(0.102)
Scandinavian Law	1517**	1576**	1007+	1560**	1156**	1607***	-41.5	-190.5
	(0.012)	(0.011)	(0.139)	(0.018)	(0.040)	(0.002)	(0.964)	(0.822)
Political stability	0.268	1.626	1.993	1.449	3.220	1.714	4.317	1.913
	(0.960)	(0.782)	(0.693)	(0.791)	(0.447)	(0.691)	(0.518)	(0.774)
Equity market capitalization								0.000***
								(0.000)
Number of observations	55	55	55	54	67	67	54	45
Adjusted R Square	0.904	0.917	0.907	0.903	0.908	0.904	0.906	0.952

*** p<0.01, ** p<0.05, * p<0.1, + p<0.15

From Table 4, I see that the most significant cultural dimension is masculinity (MAS). In all models, in which masculinity is included (models 3, 7 and 8) the coefficient of masculinity is negative, ca. -12. The negative coefficient implies that hypothesis 3 seems to hold. This means that the more feminine the culture is, the more VC activity there is in the country. Furthermore, the p-value in model 7 is 0.09, which indicates a significance level of 10% which is almost statistically significant. In models 3 and 8 the p-values are also within the 15% significance level. The result is in line with the implication of Aggarwal and Goodell (2014).

Moreover, I find some evidence supporting hypothesis 4. The negative coefficient of uncertainty avoidance (UAI) in models 4, 7 and 8 implies some orientation towards hypothesis 4. The result is in line with Li and Zahra's (2012) results implying that the higher the level of uncertainty avoidance in a country, the less there is VC activity. The results for UAI, are however, not statistically significant.

The results for the effect of individualism (IDV) are slightly controversial. In model 2, in which IDV is the only cultural dimension, the coefficient of IDV is -0.68. This is against hypothesis 2, since it implies, that the more collectivist the country is, the more there is VC activity. However, once we add the rest of the cultural dimensions in the model (models 7 and 8), the coefficient of IDV is positive. This is in line with hypothesis 2 and the results of Li and Zahra (2012).

The results for the effect of power distance (PDI) raise some questions too. In models 1 and 8 the coefficient of PDI is negative, which supports hypothesis 1. This implies, that the lower the power distance is in a country, the more VC activity there is in that country. However, in model 7, the coefficient of PDI is positive, which implies the contrary. These results are not statistically significant.

Furthermore, I find that surprisingly, long-term orientation (LTOWVS) seems to correlate negatively with VC activity. This is against hypothesis 5. In all models, in which LTOWVS is included (models 5, 7 and 8) the coefficient of LTOWVS is negative, ranging between -6.3 and -17.6. Furthermore, in models 7 and 5 the p-values indicate that LTOWVS is statistically significant within the 10% and 15% significance levels, respectively. This is against hypothesis 5, since it implies, that the more long-term oriented a country is, the less VC activity it has.

Additionally, the results for the effect of indulgence (IVR) are also interesting. In models 6 and 7 the coefficient of IVR is negative. This would indicate, that the more restrained the culture is, the more VC activity there is in the country. However, once we add market capitalization to the model (model 8), the coefficient of IVR turns positive, indicating the contrary.

It seems, that in addition to femininity and long-term orientation, some of the control variables could also be driving the results. Especially GDP, population and equity market capitalization seem to have a strong effect on national VC activity.

Table 4 shows that GDP and Equity market capitalization have the strongest effects on VC activity in the models. The coefficient of GDP is very small and positive and the p-value is extremely small, which means that the result is statistically very significant. The coefficient of equity market capitalization in model 8 is positive and the p-value is extremely small (0.000002), meaning that the size of the stock market in a country predicts the size of the country's VC market very well.

Additionally, population has a negative coefficient in models 1-7. This indicates that countries with larger populations tend to have less VC activity. The p-values of population in models 1-7 indicate that the results are statistically significant at levels 1% and 5%. This could indicate that less developed countries with larger populations have less VC activity. However, in model 8, the coefficient of population is slightly positive.

The results for the effect of legal origins on VC activity, show that Soviet Law and British Law have the strongest influences. In all of the models German Law is the omitted variable. The coefficient of British Law (750) indicates, that as opposed to countries with German Law origins, countries with British Law origins seem to have 750 times larger venture capital activity. This is mainly due to the impact of the United States in the dataset. However, once equity market capitalization is included in the model 8, the significance of British law decreases dramatically to a coefficient of 123. I conclude, that the significance of British law in model 7 was due to the capital market based financial system that is common in British law countries and provides a functional exit system for VCs, rather than the legal system itself.

In model 8 Soviet Law seems to provide the best platform for VC activity (coefficient 963 and p-value 0.102, which indicates a significance of 15%). The strong positive effect of Soviet law is mainly due to the influence of China's large amount of VC deals. The French Law origins also produce more venture capital activity than countries with German Law origin. Countries with Scandinavian Law origins seem to have lower level of venture capital activity compared to all other countries.

The results for the effect of political stability and absence of violence and terrorism indicate that the more stable the country is politically, the more there is VC activity. The results are, however, not statistically significant.

All in all, the Adjusted R Squares of the estimated models are all roughly 0.91. This demonstrates the validity of the models. However, they raise the question of multicollinearity between the variables.

5.3. Robustness checks

I address robustness by running the regressions in four new regression models (models 9-12). The results of the robustness checks are presented in Table 5.

Table 5. Regression results for robustness checks, models 9-12

	9	10	11	12
PDI	-549362+	0.677	4.790	6.005
	(0.117)	(0.894)	(0.358)	(0.576)
IDV	-584035*	4.286	9.634*	0.924
	(0.072)	(0.339)	(0.053)	(0.914)
MAS	-153797	-5.935+	-6.851*	-13.874*
	(0.584)	(0.144)	(0.080)	(0.072)
UAI	-416688+	-2.488	-0.372	-7.072
	(0.144)	(0.516)	(0.921)	(0.338)
LTOWVS	-320393	-0.892	-0.180	-16.091*
	(0.362)	(0.857)	(0.970)	(0.080)
IVR	126789	1.505	0.971	-10.239
	(0.698)	(0.737)	(0.820)	(0.277)
GDP	0.000	0.000***	0.000***	0.000***
	(0.526)	(0.000)	(0.000)	(0.000)
Population	0.059**	0.000+	0.000	0.000**
	(0.040)	(0.108)	(0.562)	(0.033)
British Law	15797921	300	142	702
	(0.539)	(0.433)	(0.700)	(0.336)
French Law	36287787*	152	-149	116
	(0.098)	(0.658)	(0.673)	(0.867)
Soviet Law	66389425***	221	-217	340
	(0.006)	(0.520)	(0.567)	(0.638)
Scandinavian Law	12364454	-44.03	-264.1	-98.80
	(0.705)	(0.928)	(0.575)	(0.915)
Political stability	103810	2.553	0.520	1.663
	(0.674)	(0.463)	(0.879)	(0.811)
Equity market capitalizatic	0.000***			
	(0.000)			
Western (cultural)				588.2
				(0.226)
Number of observations	45	53	52	54
Adjusted R Square	0.944	0.726	0.497	0.931

*** p<0.01, ** p<0.05, * p<0.1, + p<0.15

In model 9, I replace the dependent variable number of deals by their sum amount value in US dollars (deal volume). The results for model 9 remain similar when it comes to the cultural dimensions. The directions/ signs of the coefficients of the cultural dimensions remain same, apart from individualism. When sum of VC deals is used as the dependent variable, the coefficient for IDV is negative, meaning that the more collectivist the culture is, the more VC activity there is in that country. (This could be because of China, and its large sum amount of VC deals and the collectivist culture of China). Furthermore, the significance of feminine culture decreases, as the p-value of MAS increases from 0.09 to 0.58, meaning that the result is not robust to this robustness check. In model 9 Soviet Law becomes almost statistically significant (p-value 0.006) to produce larger VC markets than the omitted variable German Law. Other than that, the results remain similar.

As another robustness check I exclude the outliers, USA and China which are shown in section 4.2 and Appendices 2 and 3. In model 10, I only exclude USA, which is the most outstanding outlier. The biggest takeaway from the results is, that the sign of the coefficient of indulgence versus restraint changes to positive from negative. This indicates, that USA was driving the positive effect related to restrained culture. Additionally, when we exclude United States from the model, the coefficient of long-term orientation collapses from -18 to -0.9. This indicates that the superiority of the short-term oriented culture is explained by United States and its high dominance in the VC dataset. When USA is excluded, it seems that a culture with high indulgence produces more VC activity. The p-value of IVR (0.74) however, indicates that the result is not statistically significant. In model 11, I exclude both USA and China. The results of model 11 indicate femininity to be even more strongly associated with more VC activity (p-value decreases from 0.09 to 0.08, significant at 10% level). Furthermore, in model 11, the best legal origins seem to be British Law and German Law, although the results for legal origins are not statistically significant.

In the third robustness model, model 12, I add a western country indicator variable. There are different types of definitions of the "western world"; cultural definition (Latin West), political definition (Cold War West) and the economic definition (The Rich West) (Trubetskoy, 2017). I will not use the economic definition, since the economic aspects should be already taken into account in the model since GDP and Equity market capitalization are included. Furthermore, an indicator for political stability and legal origin are already included in the model. Therefore, I choose to use the cultural definition for the western indicator. The regression results in model 12 remain robust and the coefficients of different variables remain similar. The p-values for the legal origin indicators and political stability increase slightly, meaning that their significance decreases. Conversely, the p-value for femininity (mas) decreases from 0.09 to 0.07 meaning that the significance of feminine culture increases when the cultural western indicator is added. All in all, the p-values of the cultural dimensions are not much affected by adding the western indicator. The coefficient of the western indicator is positive, and its p-value is as 0.2.

All in all, the cultural dimension that is robust is femininity which is positively related to VC activity. In fact, the significance of femininity increases, when the dimensions are tested in different subsamples with the western dummy included and the outliers excluded. The effect of femininity is robust to two out of the three robustness checks. Overall, these measures lead to quite comparable, but slightly different results and slightly higher significance for some of the cultural dimensions.

6. Conclusions

In this paper, I have analyzed the influence of national culture on domestic VC activity through a regression analysis. I have measured national culture by Hofstede's six cultural dimensions and VC activity with the number of unicultural VC deals executed during 2007-2016.

The key takeaway from the results is, that the lower the country scores in masculinity, the more VC activity there is in the country. The result is almost statistically significant and is robust to two of the three robustness checks. The result is in line with the results of Aggarwal and Goodell (2014) who find that in feminine societies access to VC finance is better than in masculine societies.

The rather robust result of the relationship between feminine culture and increased VC activity has implications related to cultural values, gender roles and stance towards equality in the society. In feminine cultures gender roles are less pronounced, more women are elected in powerful positions, and equality and taking care of the weak is an important value in the society. Because of this, it is expected that in masculine cultures women and the less advantaged people of the society have less opportunities to obtain higher education or initiate innovative ventures and receive financing for them. As a result, less innovative ventures are initiated in masculine countries than feminine countries. This could be causing a loss in the utilization of potential in the

society. Therefore, the labor and entrepreneur markets are expected to have more inefficiencies in masculine countries than in feminine countries, when it comes to genders and the weaker social classes.

One might conclude, that this impact would be driven by the fact that more developed and western countries, are often also more equal and feminine in their culture, and they have more developed VC markets. However, once the western indicator variable is included, the significance of feminine culture in fact only increases.

Furthermore, the results suggest, that high power distance and uncertainty avoidance are negatively associated with more VC activity. The result of the relation between uncertainty avoidance and VC activity is in line with the results of Li and Zahra (2012) and Aggarwal and Goodell (2014). The connection between high power distance and low VC activity is presumably caused by the fewer interactions and encounters between young and less wealthy entrepreneurs and more wealthy and powerful venture capitalists. In countries with high PDI, it is presumably also less common, that people with less power will aspire to initiate ventures and approach people with power and financial resources. Furthermore, the relation between uncertainty avoidance and less VC activity is explained by the low tolerance for risk-taking activities such as VC investment and increased opportunity costs of risk-taking, which are characteristic traits of uncertainty avoiding cultures.

The signs of the regression coefficients for the cultural dimensions are in line with the hypotheses, except for long-term orientation. The coefficients for long-term orientation are negative, inclining that countries that are more short-term oriented have a higher level of VC activity. This is counter-intuitive, since one would think that a country that has a long-term orientation and is willing to learn from other countries and change traditions, would be more entrepreneurial and open towards innovation, which would support VC and startup activity. Short-term orientation seems to produce more VC activity, and what is more, the result is almost statistically significant. I find, that United States with its short-term oriented culture and exceptional amount of VC deals is driving the superiority of short-term oriented culture.

It must be emphasized that the purpose of this paper is not, however, to denigrate any cultures or rank them in an unethical way. The results of this paper, however, indicate, that some cultural dimensions support the development of entrepreneurial activity and access to venture capital finance better than others. This paper seeks to outline the implications of culture on VC activity and the possibilities in developing venture capital financing. This study could support the development of VC activity also in countries in which it is relatively weak now.

Since most of the results are not statistically significant, and the results vary among the different models, there is still room for further research on the subject.

According to previous literature and this study, there are several different variables influencing the development of VC markets and VC activity. It is indeed difficult to precisely sort out the effects of the cultural dimensions and other determinants affecting VC activity. It would be difficult to build a model that would take into account all the different determinants that affect both entrepreneurial and innovative activity and access to VC finance. Additionally, many of those determinants influence each other, and are therefore intertwined. There would be significant multicollinearity. Therefore, adding all the variables to the model would probably just cause the model to be over-explanatory. In my models, it also seems that the cultural dimensions influence on some of the controls, such as equity market capitalization and GDP. Therefore, it would be beneficial to examine the determinants of VC activity through *path analysis*. (Sarwoko et al., 2016 and McAdam et al., 2010) By using path coefficients one can define the individual effects of certain variables and construct influence networks.

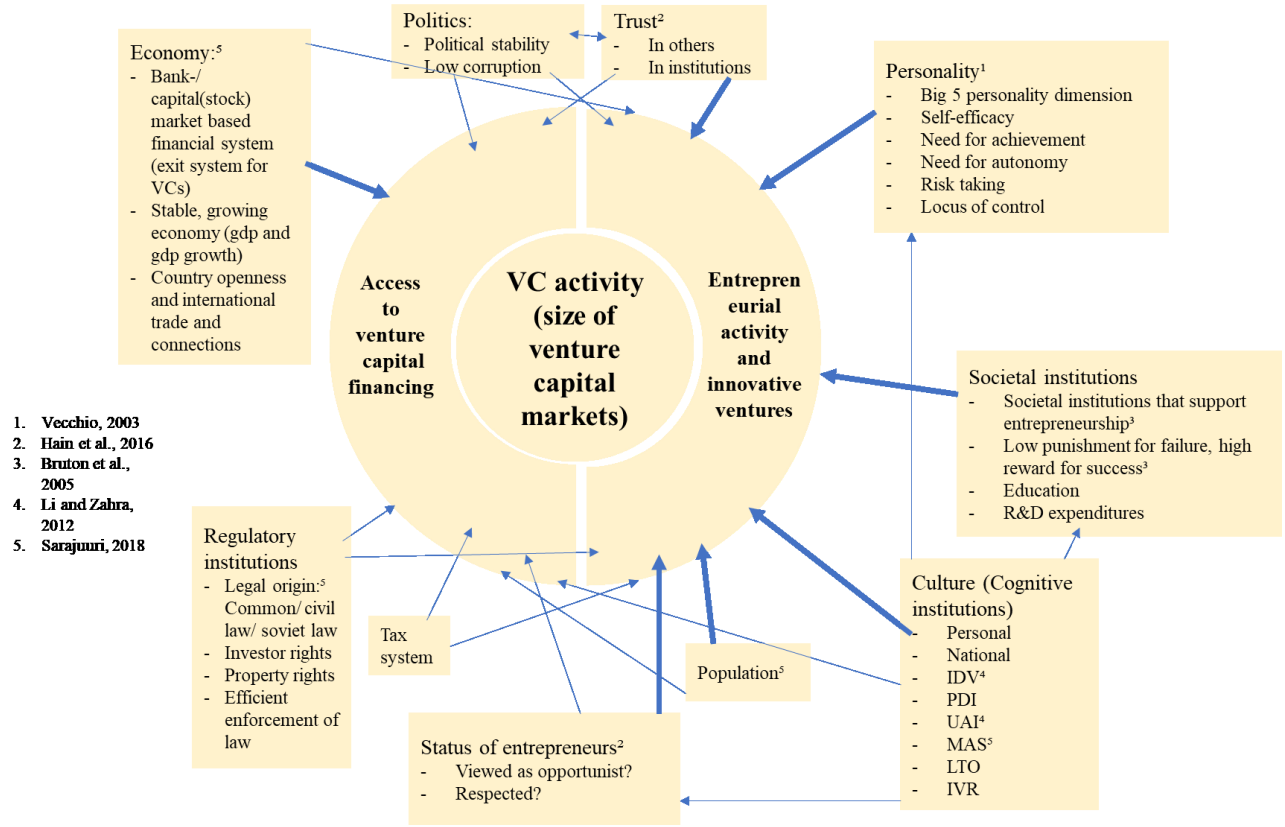


Figure 9. An illustration of the discussed and possible determinants of VC activity and their relations with each other and the two major determinants of VC activity.

Building on Figure 1, in Figure 9 I illustrate the scientifically discussed and proven, and possible, yet unestablished determinants of VC activity. The thicker arrows illustrate the relations that have been discussed in previous literature or this paper and an almost significant or significant effect has been found between these variables. The sources of the discussed and proven connections are in the table next to the framework. The thinner arrows represent relations that are possible but require further examination to be established. The relations between variables, especially the ones that are still undiscovered, could be analyzed more rigorously using path analysis to conduct an impact network.

7. Limitations, data problems and future research directions

The regression results raise several questions which require attention in future research. Particularly, the viability of the dependent variable Number of VC deals is constrained by the data available at Thomson Reuters SDC VentureXpert database. The assumed incompleteness of the database could be causing a selection bias to the results. The large amount of deals made in the United States and the Western countries could be pronounced in the dataset, especially, in case not all deals made in the developing economies have been reported for the database of the North American corporation.

Another limitation is the syndication of VC deals. I study all the VC deals from the database that have at least one local VC that represents the same nationality (and national culture) as the company receiving finance. However, as seen from my dataset, many of the syndication VC deals also include foreign VCs, in addition to the local VC, and even the lead VC is sometimes a foreign VC. This might set limitations to the extent by which the national culture of the company receiving finance is demonstrated in the deal-making and investment process. However, excluding the deals with foreign VCs involved would also limit the dataset excessively. For

future research, however, it might be interesting to see, if the effect of national culture would be more significant if only the deals with solely domestic VCs involved would be included in the regression.

When it comes to the explanative variables, there are several issues to consider. Firstly, the cultural dimensions of Hofstede have been criticized. However, it seems that dimensions are widely used for the following reasons: the measures are based on data from 53 developed and developing countries and subsequent studies indicate significant correlations with these dimensions when replicated (Hoppe, 1990 and Sondergaard 1994). Moreover, country scores are validated when compared with data from other surveys and indices measured at country level (e.g. GNP).

Additionally, the research focuses on country-level factors, such as national culture, national GDP and national-level political stability. However, there can be significant regional differences within the same country when it comes to these variables, and VC activity may also vary regionally. (see e.g. Tabellini, 2010) Using data aggregated at the country level might hide these important differences at both the regional and organizational levels. Hence, future research would benefit from studying the impact of regional and organizational differences of the heterogeneity of VC activity within a country.

Furthermore, there is a problem with the equity market capitalization data. At the time when this thesis is produced the official database of World Bank only has a large and sufficient dataset for equity market capitalization from the year 2003. For some countries it has more recent data (e.g. 2016 and 2017) but several important countries that I wanted to include in the analysis are missing for the more recent years. Due to this, I decide to run regressions with a smaller sample with the equity market capitalization data from the year 2003 and run a second set of regressions with a larger sample without the equity market capitalization as a control variable.

Since according to earlier research (Urban, 2007), entrepreneurship can be seen as an interaction between personality and cultural values, future research could try and include personality traits as explanative variables to explain entrepreneurial activity. Future research could also further inspect the two major determinants of VC activity, which are entrepreneurial activity and innovative ventures and access to venture capital financing.

8. References

Aggarwal, R., and John W. Goodell. J.W., 2014. Cross-national differences in access to finance: Influence of culture and institutional environments. Research in International Business and Finance 31: 193-211.

Biggart, N.W. and Hamilton, G.G.,1992. On the limits of a firm based theory to explain business networks: The Western bias of neoclassical economics. In N. Nohria & G.G. Eccles (Eds), Networks and Organizations (pp. 471–490). Boston: Harvard Business School Press.

Beck, T., Levine, R., & Loayza, N., 2000. Finance and the Sources of Growth. Journal of financial economics, 58(1-2), 261-300.

Black, B. and Gilson, R.J., 1998. Venture capital and the structure of capital markets: banks versus stock markets. Journal of Financial Economics 47 (March, (3)), 243–277.

Boyd RL., 1990. Black and Asian Self-Employment in Large Metropolitan Areas: A Comparative Analysis. Social Problems, 37(2):54-65.

Bruton, G. D., Vance H. F., and Manigart, S., 2005. Institutional influences on the worldwide expansion of venture capital. Entrepreneurship Theory and Practice 29.6: 737-760.

Claessens, S., & Tzioumis, K., 2006. Measuring firms' access to finance. World Bank, 1-25.

Dai, N., and Rajarishi N., 2016. Cultural differences and cross-border venture capital syndication. Journal of International Business Studies 47.2: 140-169.

Hain, Daniel; Johan, Sofia; Wang, Daojuan. Determinants of cross-border venture capital investments in emerging and developed economies: The effects of relational and institutional trust. Journal of Business Ethics 2014. 138: 743-764

Hayton, J.C., Gerard G., and Zahra, S.A., 2002. National culture and entrepreneurship: A review of behavioral research. Entrepreneurship theory and practice 26.4.2002.: 33-52.

Harvard University. Publications by Andrei Shleifer. Updated on 3rd July 2013. https://scholar.harvard.edu/shleifer/publications/quality-government

Hofstede, G., 1980. Cultures Consequences. Sage Publications. California.

Hofstede, G., 2001. Cultures Consequences. 2nd Ed. Sage Publications. California.

Hofstede, G., 2001. Cultures and Organizations 3rd edition 2010

Hofstede, G., 2015. www.geerthofstede.com

Hofstede, Gert. Dimensionalizing cultures: The Hofstede Model in context. 2011. Online readings in Psychology and Culture

Hofstede Insights website 9th November 2018: https://www.hofstede-insights.com/models/national-culture/

Hofstede, G., 2014. 10 minutes with Geert Hofstede on Masculinity versus Femininity 10112014 https://www.youtube.com/watch?v=Pyr-XKQG2CM

Hoppe MH., 1990. A Comparative Study of Country Elites. PhD Thesis. University Of North Carolina.

Gompers, P. A., Kovner, A., Lerner, J., & Scharfstein, D., 2008. Venture capital investment cycles: The impact of public markets. Journal of Financial Economics, 87(1), 1–23.

Jeng, L.A., Wells, P.C., 2000. The determinants of venture capital funding: evidence across countries. Journal of Corporate Finance 6 (September, (3)), 241–289.

KPMG., 2017 global venture capital investment hits decade high of US$155 billion following a strong Q4: KPMG Venture Pulse 16th January 2018.

Kuemmerle, W., 2001. Comparing catalysts of change: Evolution and institutional differences in the venture capital industries in the U.S., Japan and Germany. In R. Burgelman & H. Chesbrough (Eds), Research on technological innovation, management and policy (pp. 227–261). Greenwich, CT: JAI Press.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. The journal of finance, 52(3), 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R., 1999. "The Quality of Government." Journal of Law, Economics and Organization 15 (1): 222-279.

Li, Yong & Zahra, Shaker A., 2012 Formal institutions, culture, and venture capital activity: A cross-country analysis. Journal of Business Venturing, 27(1), 95-111.

McAdam, R., Moffett, S., Hazlett, S. A., & Shevlin, M., 2010. "Developing a model of innovation implementation for UK SMEs: A path analysis and explanatory case analysis." International Small Business Journal 28.3: 195-214.

McCraw, T. K., 2009. Prophet of innovation. Harvard University Press. Part III.

McGrath RG, Macmillan IC & Scheinberg S., 1992. Elitists, Risk Takers, and Rugged Individualists? An Exploratory Analysis of Cultural Differences between Entrepreneurs and Non Entrepreneurs. Journal of Business Venturing, 7:115-135.

Pallant., J., 2007. SPSS. Survival Manual. Worldwide bestseller third edition. A Step-by-Step Guide to Data Analysis using SPSS version 15.

Perkins, D.H., 2000. Law, family ties and the East Asian way of business. In L. Harrison & S. Huntington (Eds), Culture matters: How values shape human progress (pp. 232–243). New York: Basic Books.

Rajan, R.G., Zingales, L., 1998. Financial dependence and growth. American Economic Review 88 (June, (3)), 559–586.

Safari, A., 2017. Worldwide venture capital, intellectual property rights, and innovation.

Sarwoko, E., and Frisdiantara, C., 2016. Growth Determinants of Small Medium Enterprises (SMEs). Universal Journal of Management 4.1: 36-41.

Shane, S., 1992. Why do some societies invent more than others? Journal of Business Venturing, 7, 29-46.

Shane, S., 1993. Cultural influences on national rates of innovation. Journal of Business Venturing, 8, 59-73.

Skardon, J., 2011. The role of trust in innovation networks.

Sondergaard M. 1994. Hofstedes Consequences: A Study of Reviews, Citations and Replications. Organizational Studies, 15(3).

Tabellini, G., 2010. Culture and institutions: economic development in the regions of Europe. Journal of the European Economic association 8.4: 677-716.

Trubetskoy, S., 2017. List of Western countries. https://sashat.me/2017/12/07/what-is-the-list-of-western-countries-in-the-world/

Urban, B., 2007. A framework for understanding the role of culture in entrepreneurship. Acta Commercii 7.1: 82-95.

Vecchio RP., 2003. Entrepreneurship and Leadership: Common Trends and Common Threads.

Wright, M., Pruthi, S., Lockett, A., 2005. International venture capital research: from cross-country comparisons to crossing borders. International Journal of Management Reviews 7 (3), 135–165.

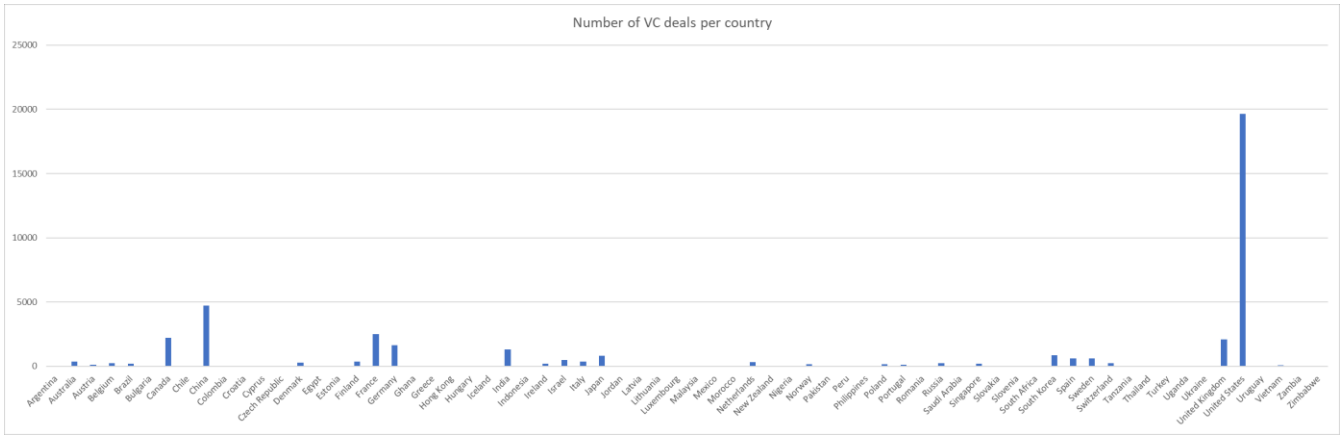
WGI., 2018. World Governance Indicators. World Bank.

Zaheer, A., McEvily, B., & Perrone, V., 1998. Does trust matter? exploring the effects of inter-organizational and interpersonal trust on performance. Organizational Science, 9(2), 141-159.

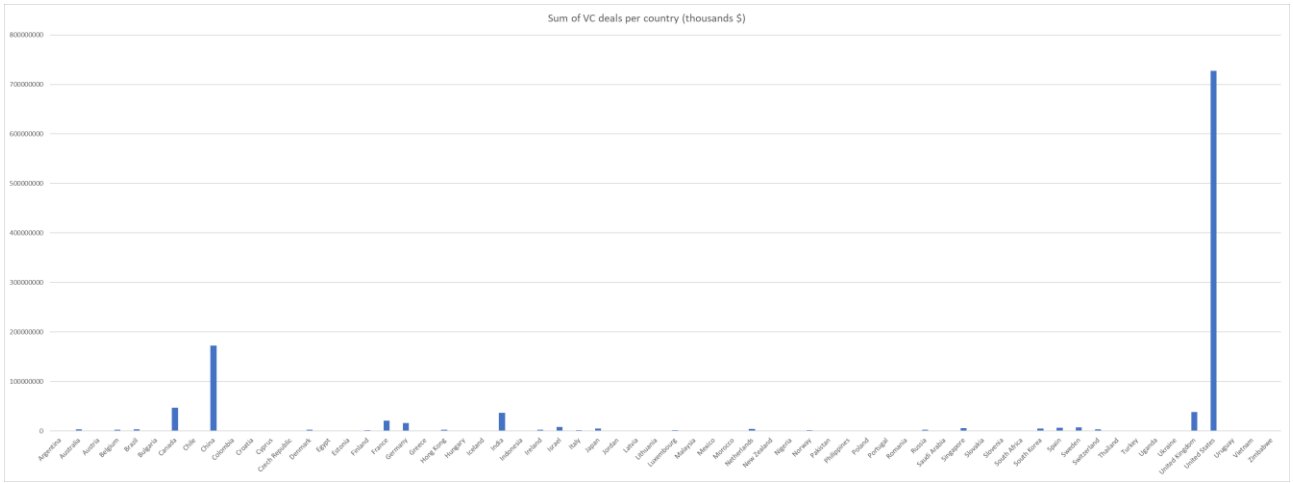
9. Appendix

Regression analysis	Y	Control variables								Explanative variables (cultural dimensions)					
				Legal origin				Equity	Political	x1	x2	x3	x4	x5	x6
Company Nation	Number of VC deals (07-16)	GDP (Avg 07-16)	Population (Avg 07-16)	British Law	French Law	Soviet Law	Scandin av Law	Market Cap (2003)	stability (Avg 07-16)	pdi	idv	mas	uai	ltowvs	ivr
Argentina	13	4.7E+11	4.2E+07	0	1	0	0	3.5E+10	46.19	49	46	56	86	20	62
Australia	350	1.2E+12	2.3E+07	1	0	0	0	5.86E+11	80.48	38	90	61	51	21	71
Austria	99	4.1E+11	8.5E+06	0	0	0	0	5.65E+10	92.15	11	55	79	70	60	63
Belgium	220	5.0E+11	1.1E+07	0	1	0	0	1.74E+11	71.84	65	75	54	94	82	57
Brazil	200	2.1E+12	2.0E+08	0	1	0	0	2.35E+11	39.74	69	38	49	76	44	59
Bulgaria	8	5.3E+10	7.3E+06	0	0	1	0	1.76E+09	53.90	70	30	40	85	69	16
Canada	2220	1.6E+12	3.5E+07	1	0	0	0	9.1E+11	88.14	39	80	52	48	36	68
Chile	6	2.3E+11	1.7E+07	0	1	0	0	8.65E+10	61.28	63	23	28	86	31	68
China	4721	7.8E+12	1.3E+09	0	0	1	0	5.13E+11	27.76	80	20	66	30	87	24
Croatia	2	5.9E+10	4.3E+06	0	0	1	0	6.13E+09	66.90	73	33	40	80	58	33
Czech Republic	17	2.1E+11	1.0E+07	0	0	1	0	1.55E+10	84.09	57	58	57	74	70	29
Denmark	270	3.3E+11	5.6E+06	0	0	0	1	1.22E+11	82.21	18	74	16	23	35	70
Finland	377	2.6E+11	5.4E+06	0	0	0	1	1.7E+11	95.62	33	63	26	59	38	57
France	2517	2.7E+12	6.5E+07	0	1	0	0	1.36E+12	60.57	68	71	43	86	63	48
Germany	1632	3.6E+12	8.1E+07	0	0	0	0	1.08E+12	74.68	35	67	66	65	83	40
Ghana	1	3.6E+10	2.5E+07	1	0	0	0	6.4E+08	45.46	#NULL!	#NULL!	#NULL!	#NULL!	4	72
Greece	14	2.7E+11	1.1E+07	0	1	0	0	1.07E+11	43.71	60	35	57	112	45	50
Hong Kong	51	2.6E+11	7.1E+06	1	0	0	0	7.15E+11	83.36	68	25	57	29	61	17
Hungary	16	1.3E+11	9.9E+06	0	0	1	0	1.67E+10	69.15	46	80	88	82	58	31
India	1300	1.7E+12	1.3E+09	1	0	0	0	2.79E+11	12.91	77	48	56	40	51	26
Indonesia	20	7.6E+11	2.5E+08	0	1	0	0	5.47E+10	23.26	78	14	46	48	62	38
Ireland	205	2.5E+11	4.6E+06	1	0	0	0	8.51E+10	82.74	28	70	68	35	24	65
Israel	491	2.6E+11	7.8E+06	1	0	0	0	7.02E+10	12.81	13	54	47	81	38	#NULL!
Italy	345	2.1E+12	6.0E+07	0	1	0	0	6.15E+11	61.05	50	76	70	75	61	30
Japan	800	5.2E+12	1.3E+08	0	0	0	0	2.95E+12	81.71	54	46	95	92	88	42
Luxembourg	11	5.7E+10	5.3E+05	0	1	0	0	3.73E+10	97.77	40	60	50	70	64	56
Malaysia	36	2.7E+11	2.9E+07	1	0	0	0	1.61E+11	49.62	104	26	50	36	41	57
Mexico	47	1.1E+12	1.2E+08	0	1	0	0	1.23E+11	22.52	81	30	69	82	24	97
Netherlands	317	8.5E+11	1.7E+07	0	1	0	0	4.89E+11	82.97	38	80	14	53	67	68
New Zealand	47	1.6E+11	4.4E+06	1	0	0	0	3.3E+10	95.57	22	79	58	49	33	75
Norway	162	4.5E+11	5.0E+06	0	0	0	1	9.59E+10	93.85	31	69	8	50	35	55
Peru	4	1.6E+11	3.0E+07	0	1	0	0	1.41E+10	22.76	64	16	42	87	25	46
Philippines	8	2.3E+11	9.6E+07	0	1	0	0	2.32E+10	11.80	94	32	64	44	27	42
Poland	161	4.9E+11	3.8E+07	0	0	1	0	3.7E+10	78.21	68	60	64	93	38	29
Portugal	108	2.3E+11	1.0E+07	0	1	0	0	5.83E+10	74.40	63	27	31	104	28	33
Romania	5	1.8E+11	2.0E+07	0	0	1	0	3.4E+09	52.71	90	30	42	90	52	20
Singapore	190	2.6E+11	5.2E+06	1	0	0	0	1.49E+11	94.62	74	20	48	8	72	46
Slovakia	8	9.3E+10	5.4E+06	0	0	1	0	1.29E+09	82.81	104	52	110	51	77	28
Slovenia	4	4.8E+10	2.0E+06	0	0	1	0	7.13E+09	81.55	71	27	19	88	49	48
South Africa	50	3.4E+11	5.3E+07	1	0	0	0	2.61E+11	43.96	#NULL!	#NULL!	#NULL!	#NULL!	34	63
South Korea	833	1.2E+12	5.0E+07	0	0	0	0	3.29E+11	56.92	60	18	39	85	100	29
Spain	625	1.4E+12	4.6E+07	0	1	0	0	7.26E+11	43.98	57	51	42	86	48	44
Sweden	610	5.2E+11	9.5E+06	0	0	0	1	2.9E+11	88.96	31	71	5	29	53	78
Switzerland	232	6.2E+11	8.0E+06	0	0	0	0	7.27E+11	95.66	34	68	70	58	74	66
Thailand	12	3.6E+11	6.8E+07	1	0	0	0	1.19E+11	12.91	64	20	34	64	32	45
Turkey	34	8.2E+11	7.4E+07	0	1	0	0	6.84E+10	14.10	66	37	45	85	46	49
United Kingdom	2096	2.7E+12	6.3E+07	1	0	0	0	2.43E+12	59.68	35	89	66	35	51	69
United States	19666	1.6E+13	3.1E+08	1	0	0	0	1.43E+13	63.61	40	91	62	46	26	68
Zambia	1	2.1E+10	1.5E+07	1	0	0	0	7.56E+08	59.51	#NULL!	#NULL!	#NULL!	#NULL!	30	42

Appendix 1. All values for the countries for all of the variables.



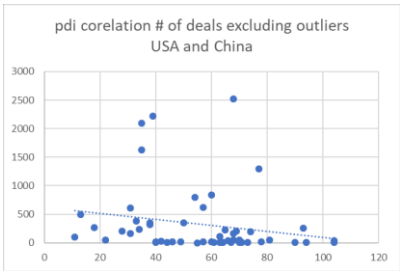
Appendix 2. Histograms of the Number of VC deals per country, unedited version. The United States strikes off as an outlier with 19 666 VC deals during the 10-year period.



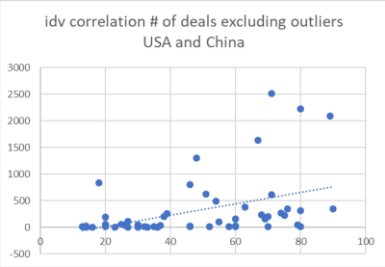
Appendix 3. Histograms of the Sum amount of VC deals in thousands per country, unedited version.

	Number of VC deals	*GDP*	*Population*	*British*	*French*	*Soviet*	*Scandinav*	*Market Cap (*	*Political stab*	*pdi*	*idv*	*mas*	*uai*	*ltowvs*	*ivr*
Number of VC deals	1														
GDP (Avg 07-16)	**0.93602891**	1													
Population (Avg 07-	**0.303298215**	0.441881	1												
British Law	**0.283382733**	0.197886	0.13202	1											
French Law	**-0.155893199**	-0.13218	-0.10234	-0.42249	1										
Soviet Law	**-0.059637435**	-0.0641	0.109551	-0.2844	-0.37139	1									
Scandinavian Law	**-0.057736911**	-0.11265	-0.11226	-0.17766	-0.23201	-0.15617	1								
Equity Market Cap (	**0.957826798**	0.901539	0.131587	0.298327	-0.14344	-0.14241	-0.073949	1							
Political stability (Av	**-0.032765086**	-0.1015	-0.44892	0.048403	-0.42548	0.053249	0.318415	0.03340883	1						
pdi	**-0.118825511**	-0.08461	0.241611	-0.08687	0.200985	0.373046	-0.408612	-0.1642545	-0.56336273	1					
idv	**0.290964444**	0.239299	-0.16158	0.184253	-0.1913	-0.15244	0.251834	0.33354505	0.52374102	-0.67613	1				
mas	**0.10578011**	0.223604	0.141288	0.119265	-0.12706	0.170542	-0.546733	0.15397507	-0.03463571	0.154036	0.132989	1			
uai	**-0.187868957**	-0.15335	-0.26542	-0.58161	0.452423	0.204521	-0.317332	-0.1294512	-0.17940136	0.154225	-0.19961	0.039739	1		
ltowvs	**-0.084663352**	0.065815	0.169612	-0.29907	-0.1886	0.263503	-0.172434	-0.0943498	0.19200371	0.127055	-0.08484	0.241681	0.022868	1	
ivr	**0.124186593**	0.063388	-0.25144	0.187855	0.150168	-0.55606	0.268468	0.16846964	0.19398733	-0.50081	0.426052	-0.17244	-0.20064	-0.46886	1

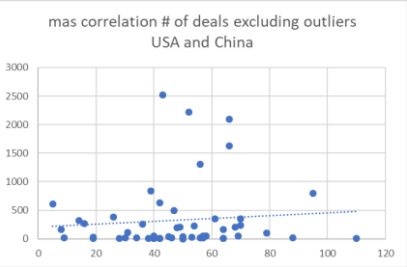
Appendix 4. Correlation coefficients between all the explanative and control variables and the dependent Y variable, Number of VC deals.



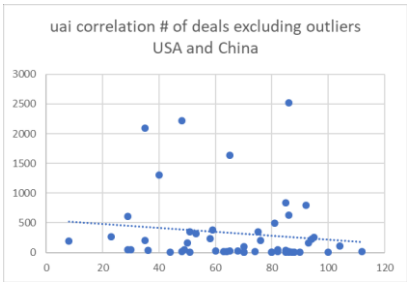
Appendix 5. The scatter plot chart of the correlation between PDI and Number of VC deals.



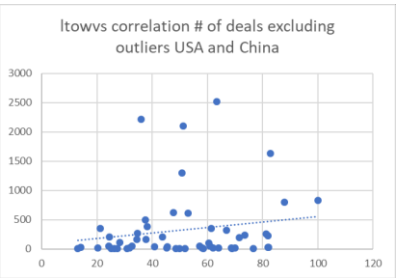
Appendix 6. The scatter plot chart of the correlation between IDV and Number of VC deals.



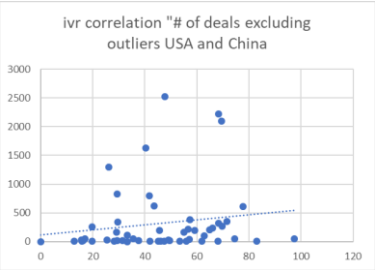
Appendix 7. The scatter plot chart of the correlation between MAS and Number of VC deals.



Appendix 8. The scatter plot chart of the correlation between UAI and Number of VC deals.



Appendix 9. The scatter plot chart of the correlation between LTOWVS and Number of VC deals.



Appendix 10. The scatter plot chart of the correlation between IVR and Number of VC deals.